Figure 100

$$H_2^{130} \xrightarrow{120} \xrightarrow{OH^-} \xrightarrow{OH^-} \xrightarrow{140} \xrightarrow{150}$$

$$R-C=C-C-R+O' \longrightarrow R'=C-C-R \xrightarrow{170} R'=C=O+C-C-R$$

$$R'=C-C-R \xrightarrow{180} R'=C-C-R$$

$$H_2^{210}O_2 + OH^- \rightarrow HO_2^- + H_2^{240}O$$

$$HO_{2}^{-} \xrightarrow{time} OH^{-} + O^{\bullet}$$

$$Fe^{2+} + H_{2}O_{2} \xrightarrow{pH \ 3-5} Fe^{3+} + OH^{-} + OH^{\bullet}$$

$$Fe^{3+} + H_{2}O_{2} \xrightarrow{pH \ 3-5} Fe^{2+} + H^{+} + HOO^{\bullet}$$

$$Fe^{3+} + H_{2}O_{2} \xrightarrow{fin} Fe^{2+} \xrightarrow{pH \ 3-5} Fe^{2+} + Fe(OH)_{3}$$

$$\begin{array}{c} {}^{610} \quad {}^{620} \quad {}^{630} \quad {}^{640} \quad {}^{660} \\ I_2 + H_2 O_2 \longrightarrow IO_3^- + H^+ + H_2 O \\ \\ {}^{630} \quad {}^{625} \quad {}^{640} \quad {}^{615} \quad {}^{665} \quad {}^{650} \\ IO_3^- + H_2 O_2 + H^+ \longrightarrow I_2 + H_2 O + O_2 \end{array}$$

$$I^{710}$$
 720 730 740 $I^{-} + H_2O_2 \rightarrow IO^{-} + H_2O$
 730 725 715 745 750 10 $^{-} + H_2O_2 \rightarrow I^{-} + H_2O + O_2$

Figure 800

810	820	830	840
OI(OH) ₅	$I(IO_3)_3$	O ₂ IOIO ₂	<u>I</u> -

Figure 900

$$O^{\bullet} + O^{\bullet} \rightarrow O_{2 \text{ (gas)}}^{920}$$

Figure 1000

$$H_2^{1010} \xrightarrow{1020} \stackrel{1030}{\longrightarrow} I_3^- + 2OH^-$$

Figure 1200

1210
$$H_2O_2 + I^- \to IOH + OH^ k=10^{-2}$$

1220 $HO_2^- + I^- \to IO^- + OH^ k=10^0$
1230 $I^- + IOH \to I_2 + OH^-$
1240 $I_2 + OH^- \to I^- + IOH$
1250 $HO_2^- + IOH \to I^- + O_2 + H_2O$ $k=10^8$
1260 $I_2 + I^- \to I_3^-$
1270 $H_2O_2 \to HO_2^- + H^+$
1280 $IOH \to IO^- + H^+$

Figure 1400

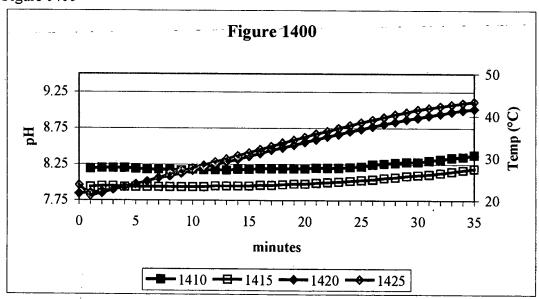


Figure 1500

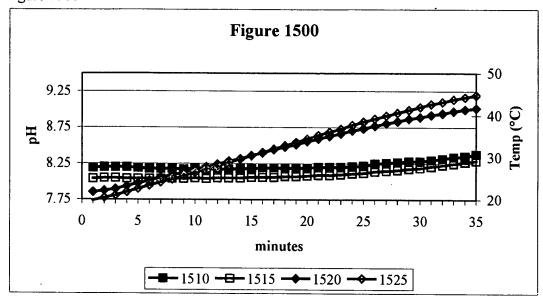


Figure 1600

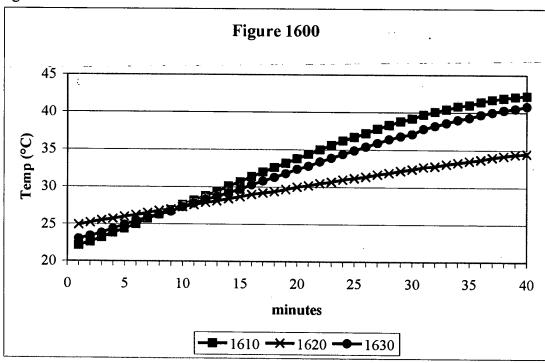


Figure 1700

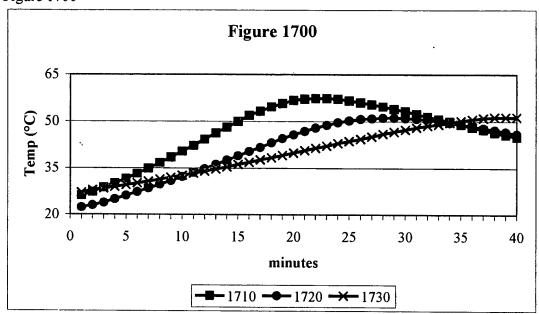


Figure 1800

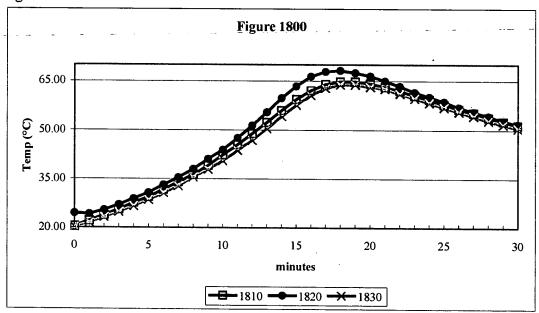


Figure 1900

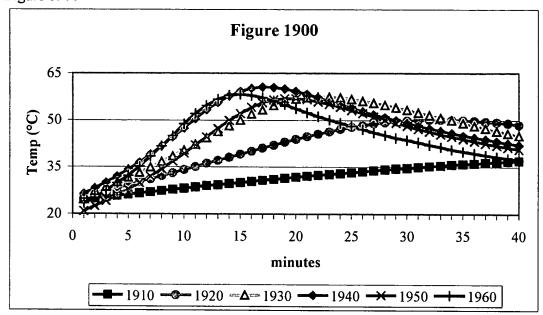


Figure 2000 $I_2 + H_2O_2 \rightarrow IO_3^- + O_2 + H^+ + H_2O_3$ $IO_3 + I^- + 2H^+ \rightarrow HOIO + HOI$ $IO_3^- + HOIO + H^+ \rightarrow IO_2^+ + H_2O$ $IO_{2}^{\bullet} + H_{2}O_{2} \rightarrow IO_{3}^{\bullet} + H^{+} + HO^{\bullet}$ $HO^{\bullet} + H_2O_2 \rightarrow H_2O + HOO^{\bullet}$ $HOO^{\bullet} + I_{2} \rightarrow I^{-} + O_{2} + H^{+} + I^{\bullet}$

2052 2051 2056

$$I^{\bullet} + O_{2} \leftrightarrow IOO^{\bullet}$$

2056 2011 2061
2060 $IOO^{\bullet} + I^{-} + H^{+} \rightarrow HOI + OI^{\bullet}$
2061 2007 2066 2067
2065 $OI^{\bullet} + H_{2}O_{2} \rightarrow HOIO + HO^{\bullet}$

(A)
$$HOIO_j + HOIO_k \rightarrow HOIO_{j-1} + HOIO_{k+1}$$

(B)
$$HOIO_j + HOOH \rightarrow HOIO_{j-1} + O_2 + H_2O$$

(C)
$$HOIO_{j-1} + HOOH \rightarrow HOIO_j + H_2O$$

(D)
$$IO_j^{\bullet} + HOOH \rightarrow HOIO_j + HO^{\bullet}$$

(E)
$$IO_j^{\bullet} + HOOH \rightarrow HOIO_{j-1} + HOO^{\bullet}$$

(F)
$$IO_j^{\bullet} + O_2 + H_2O \rightarrow HOIO_j + HOO^{\bullet}$$

(G)
$$IO_j^{\bullet} + H_2O \rightarrow HOIO_{j-1} + HO^{\bullet}$$

$$(H_1)$$
 $HO_m^{\bullet} + HOOH \rightarrow H_2O + HOO^{\bullet}$ $_{m=1}$

$$(H_2)$$
 $HO_m^{\bullet} + HOOH \rightarrow O_2 + H_2O + HO^{\bullet}$ $_{m=2}$

$$(I_1)$$
 $IO_j^{\bullet} + HOIO_k \rightarrow HOIO_{j-1} + IO_{k+1}^{\bullet}$

$$(I_2)$$
 $IO_j^{\bullet} + HOIO_k \rightarrow HOIO_j + IO_k^{\bullet}$

$$(I_3)$$
 $IO_j^{\bullet} + HOOH \rightarrow H_2O + IO_{j+1}^{\bullet}$

$$(J_1)$$
 $IO_j^{\bullet} + HOIO_k \rightarrow HOIO_{k-1} + IO_{j+1}^{\bullet}$

$$(J_2)$$
 $IO_j^{\bullet} + IO_k^{\bullet} \rightarrow IO_{k-1}^{\bullet} + IO_{j+1}^{\bullet}$

$$(K)$$
 $IO_j^{\bullet} + O_2 \rightarrow OOIO_j^{\bullet}$

(L)
$$OOIO_{j}^{\bullet} + HOIO_{k} \rightarrow HOIO_{k+1} + IO_{j+1}^{\bullet}$$

$$(M_1)$$
 $IO_j^{\bullet} + OOIO_k^{\bullet} \rightarrow IO_{k+1}^{\bullet} + IO_{j+1}^{\bullet}$

$$(M_2)$$
 $IO_j^{\bullet} + HOO^{\bullet} \rightarrow HO^{\bullet} + IO_{j+1}^{\bullet}$

(N)
$$HOIO_j + HOIO_k \rightarrow IO_{j+1}^{\bullet} + IO_{k+1}^{\bullet} + H_2O$$

(O)
$$R_{\alpha}^{\bullet} + R_{\beta}^{\bullet} \rightarrow \text{even - electron products}$$

$$(P) \quad O_{2(aq)} \leftrightarrow O_{2(g)}$$

(A1)
$$HOI + I + H^+ \leftrightarrow I_2 + H_2O$$

(A2)
$$HOIO + I^- + H^+ \leftrightarrow 2HOI$$

(A3)
$$IO_3^- + I^- + 2H^+ \leftrightarrow HOIO + HOI$$

$$(A4)$$
 2HOIO \leftrightarrow IO $_3^-$ + HOI + H $^+$

(B0)
$$HOI + HOOH \leftrightarrow I^- + O_{2(aq)} + H^+ + H_2O$$

(B1)
$$HOIO + HOOH \leftrightarrow HOI + O_{2(aq)} + H_2O$$

(B2)
$$IO_3^- + HOOH + H^+ \leftrightarrow HOIO + O_{2(aq)} + H_2O$$

(D1)
$$IO^{\bullet} + HOOH \leftrightarrow HOIO + HO^{\bullet}$$

(D2)
$$IO_2^{\bullet} + HOOH \leftrightarrow IO_3^{-} + H^{+} + HO^{\bullet}$$

$$(-Fi)$$
 HOO $^{\bullet}$ + $I_2 \leftrightarrow I^-$ + $O_{2(aq)}$ + H^+ + I^{\bullet}

(H1)
$$HO^{\bullet} + HOOH \leftrightarrow H_2O + HOO^{\bullet}$$

$$(K0)$$
 $I^{\bullet} + O_{2(aq)} \leftrightarrow OOI^{\bullet}$

(L0)
$$OOI^{\bullet} + I^{-} + H^{+} \leftrightarrow HOI^{\bullet} + IO^{\bullet}$$

(N2)
$$IO_3^- + HOIO + H^+ \leftrightarrow 2IO_2^+ + H_2O$$

$$_{(O1)}$$
 2HOO $^{\bullet} \leftrightarrow$ HOOH + O_{2 (aq)}

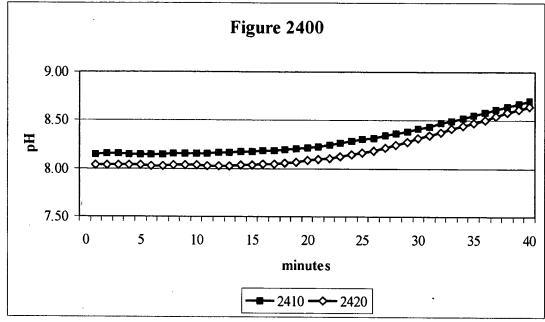
$$(O2)$$
 $I^{\bullet} + HOO^{\bullet} \leftrightarrow I^{-} + O_{2(aq)} + H^{+}$

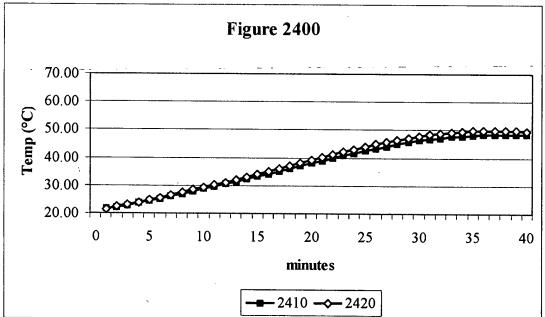
$$(O3)$$
 $2I^{\bullet} \leftrightarrow I_2$

$$(P)$$
 $O_{2(aq)} \leftrightarrow O_{2(g)}$

$$IO_3^- + H_2O_2^- + H^+ \xrightarrow{2310} I_2^- + O_{2(aq)}^- + H_2O_2^-$$

Figure 2400





$$H_2^{2610} \xrightarrow{2620} \xrightarrow{COH^-} O^{\bullet} + H_2^{\bullet}O^{\bullet}$$

2650

$$HOIO_{j} + HOIO_{k} \rightarrow HOIO_{j-1} + HOIO_{k+1}$$

$$HOIO_{j} + HOOH \rightarrow HOIO_{j-1} + O_{2} + H_{2}O$$

$$HOIO_{j-1} + HOOH \rightarrow HOIO_{j} + H_{2}O$$

$$IO_{j}^{\bullet} + HOOH \rightarrow HOIO_{j} + HO^{\bullet}$$

$$IO_{j}^{\bullet} + HOOH \rightarrow HOIO_{j-1} + HOO^{\bullet}$$

$$IO_{j}^{\bullet} + O_{2} + H_{2}O \rightarrow HOIO_{j} + HO^{\bullet}$$

$$IO_{j}^{\bullet} + H_{2}O \rightarrow HOIO_{j-1} + HO^{\bullet}$$

$$HO_{m}^{\bullet} + HOOH \rightarrow H_{2}O + HOO^{\bullet}$$

$$m = 1$$

$$HO_{m}^{\bullet} + HOOH \rightarrow O_{2} + H_{2}O + HO^{\bullet}$$

$$m = 2$$

$$IO_{j}^{\bullet} + HOIO_{k} \rightarrow HOIO_{j-1} + IO_{k+1}^{\bullet}$$

$$IO_{j}^{\bullet} + HOIO_{k} \rightarrow HOIO_{j} + IO_{k}^{\bullet}$$

$$IO_{j}^{\bullet} + HOOH \rightarrow H_{2}O + IO_{j+1}^{\bullet}$$

$$IO_{j}^{\bullet} + HOIO_{k} \rightarrow HOIO_{k-1} + IO_{j+1}^{\bullet}$$

$$IO_{j}^{\bullet} + HOIO_{k} \rightarrow HOIO_{k-1} + IO_{j+1}^{\bullet}$$

$$IO_{j}^{\bullet} + IO_{k}^{\bullet} \rightarrow IO_{k-1}^{\bullet} + IO_{j+1}^{\bullet}$$

$$IO_{j}^{\bullet} + O_{2} \rightarrow OOIO_{j}^{\bullet}$$

$$OOIO_{j}^{\bullet} + HOIO_{k} \rightarrow HOIO_{k+1} + IO_{j+1}^{\bullet}$$

$$IO_{j}^{\bullet} + OOIO_{k}^{\bullet} \rightarrow IO_{k+1}^{\bullet} + IO_{j+1}^{\bullet}$$

$$IO_{j}^{\bullet} + HOO^{\bullet} \rightarrow HO^{\bullet} + IO_{j+1}^{\bullet}$$

$$HOIO_{j} + HOIO_{k} \rightarrow IO_{j+1}^{\bullet} + IO_{k+1}^{\bullet} + H_{2}O$$

$$R_{\alpha}^{\bullet} + R_{\beta}^{\bullet} \rightarrow \text{even - electron products}$$

$$O_{2(aq)} \leftrightarrow O_{2(g)}$$

$$HOIO + HOOH \leftrightarrow HOI + O_{2(aq)} + H_{2}O$$

$$IO^{\bullet} + HOOH \leftrightarrow HOIO + HO^{\bullet}$$

$$HO^{\bullet} + HOOH \leftrightarrow H_{2}O + HOO^{\bullet}$$

$$I^{\bullet} + O_{2(aq)} \leftrightarrow OOI^{\bullet}$$

$$2HOO^{\bullet} \leftrightarrow HOOH + O_{2(aq)}$$

$$2I^{\bullet} \leftrightarrow I_{2}$$

$$OI(OH)_{5}$$

$$I(IO_{3})_{3}$$

$$O_{3}IOIO_{3}$$

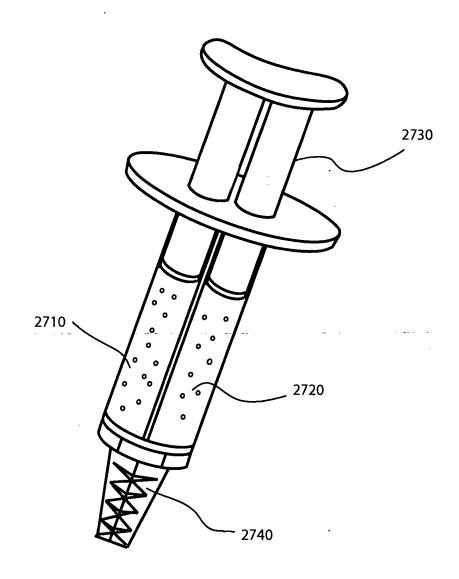


Fig. 2700

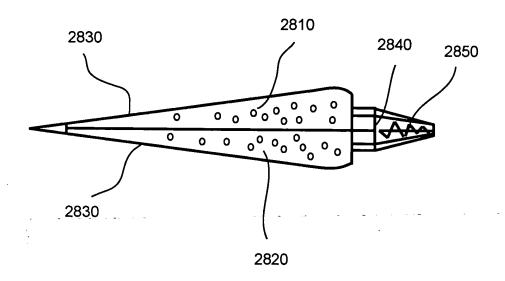


Fig. 2800

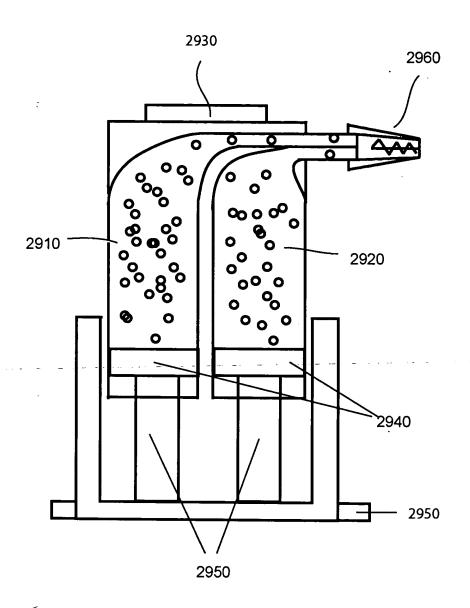
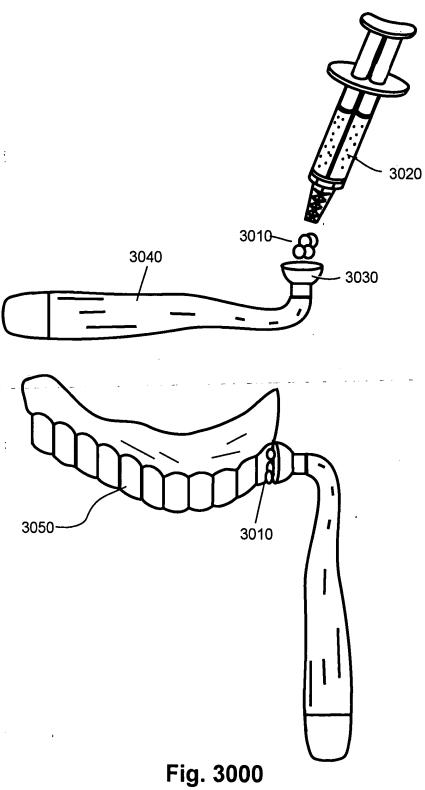


Fig 2900



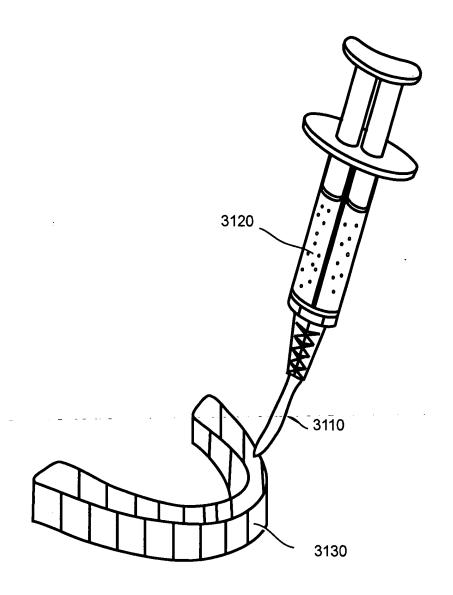


Fig. 3100